

# WA Dpt of Ecology

## Impacts of Bottle Bill on ONP Glass Content

# Quality Inspection Activity



- A recycling process is exposed to every item, big or small, found in shipments so it is critical to perform detailed sampling and not just a visual check or “kick through” as many suppliers/customers perform.
- Randomly selected 1,700 lb bale is sub sampled into a targeted 200 - 300 lb sample.
- It is then sorted into multiple categories on an elevated 8' x 8' table that is ergonomically friendly so we capture every item.
- Details of sort process are shared with supplier

# QIA Report Examples



SINGLE  
STREAM  
w/ GLASS

## NP Recycle Bale QIA Inspection (new-fractions)

Lab Sample Date: Selected Date [Apr 01,2013 00:00:00 , Dec 31,2013 23:59:59]

Received Date	Release Number (Trip Ticket)	ROI #	Transport ID	Bulk or Bale	Grade ID	QIA Sample Weight	Prohibitives							Outthrows						Acceptable		Summary				
							Metals		Plastics			% Other Plastics	% Glass	% Glass	% Other Prohib	Unbleached			% Bichd / White Cntrs	% White / Colored Ledger	% Junk Mail	% Phone Books	% OMG	% ONP & Inserts	% Total Outthr	% Total Prohib
							% Tin	% Alum	% HDPE	% PETE	% Film					% OCC / Kraft Bag	% Carrier Board	% Chip Board	%	%	%	%	%	%	%	%
4/16/13 03:33	NM1304107					233.20	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.000	3.56	6.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.62	6.73	3.65
4/17/13 23:51	NM1304137					147.90	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.000	5.41	5.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.90	5.88	6.22
5/18/13 16:50	NM1305107					246.70	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.000	3.24	5.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.20	5.39	3.40
5/31/13 15:32	NM1305272					263.80	0.00	0.00	0.00	0.00	0.00	0.00	0.68	0.000	3.37	4.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.36	4.59	4.05
5/31/13 15:33	NM1305273					233.60	0.00	0.00	0.00	0.00	0.00	0.00	1.03	0.000	5.48	6.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.33	6.16	6.51
6/28/13 14:09	NM1306132					249.20	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.000	4.05	5.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.69	5.02	4.29
6/30/13 16:30	NM1306137					243.80	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.000	3.65	5.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.24	5.95	3.81
7/17/13 22:12	NM1307118					280.80	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.000	3.35	5.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.52	5.02	3.46
7/26/13 14:18	NM1307141					313.20	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.000	6.32	6.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.85	6.48	6.67
8/04/13 23:55	NM1307157					278.10	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.000	4.17	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.61	5.00	4.39
8/25/13 14:07	NM1308133					294.70	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.000	7.77	10.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.44	10.49	8.08
9/08/13 14:28	NM1308166					287.30	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.000	3.38	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	91.54	4.77	3.69
9/22/13 14:59	NM1309168					287.60	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.000	3.34	7.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.66	7.86	3.48
Supplier Summary						3,359.90	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.000	4.40	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.11	6.15	4.74



SINGLE  
STREAM  
w/o GLASS

## NP Recycle Bale QIA Inspection (new-fractions)

Lab Sample Date: Selected Date [Apr 01,2013 00:00:00 , Dec 31,2013 23:59:59]

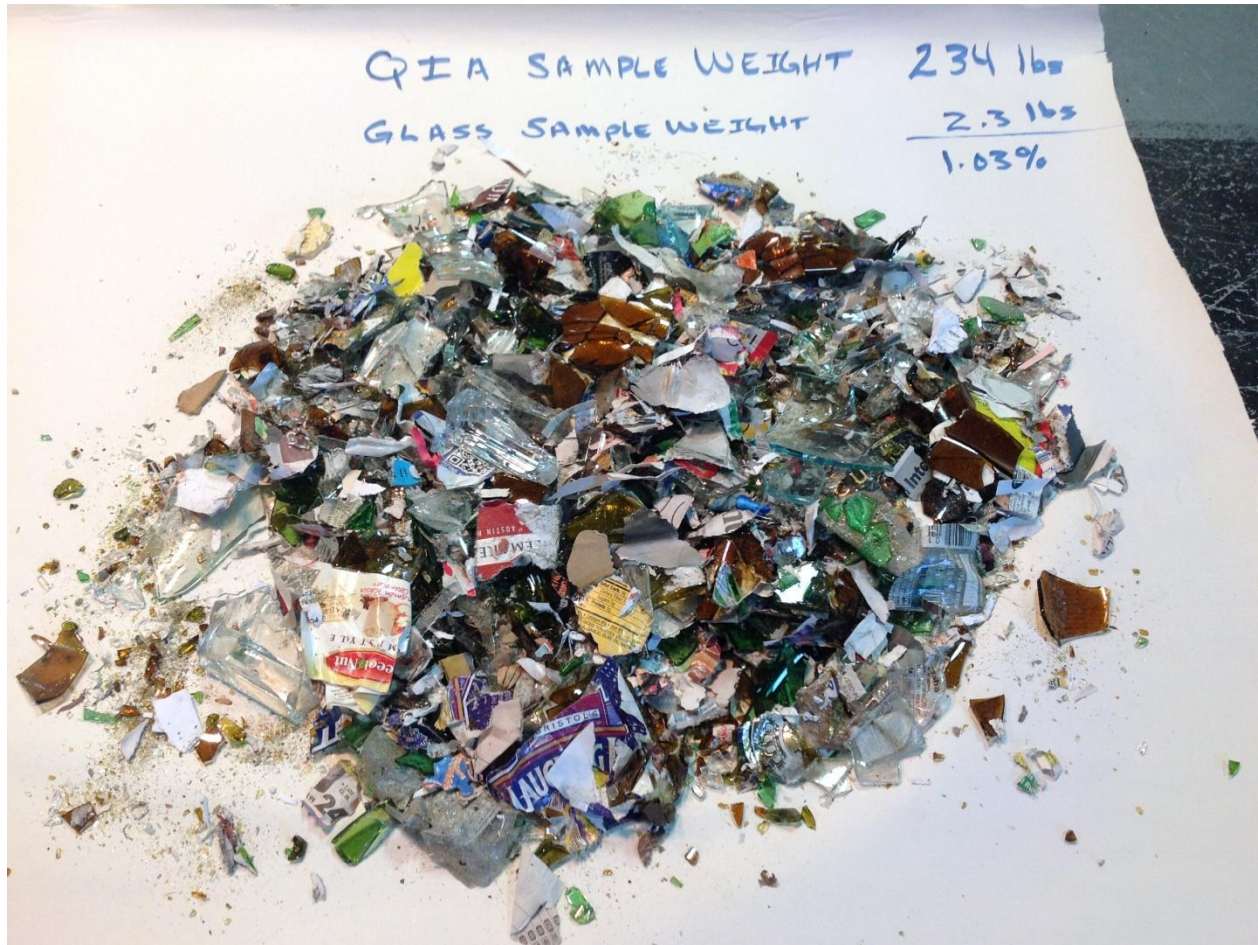
Received Date	Release Number (Trip Ticket)	BOL #	Transport ID	Bulk or Bale	Grade ID	QIA Sample Weight	Prohibitives							Outthrows							Acceptable		Summary			
							Metals		Plastics			% Other Plastics	% Glass	% Glass	% Other Prohib	Unbleached			% Bichd / White Cntrs	% White / Colored Ledger	% Junk Mail	% Phone Books	% OMG	% ONP & Inserts	% Total Outthr	% Total Prohib
							% Tin	% Alum	HDPE	PETE	% Film					% OCC / Kraft Bag	Carrier Board	% Chip Board								
4/27/13 14:00	N1304219					196.80	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.000	3.86	2.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92.99	2.90	4.11
5/15/13 05:21	N1305186					188.30	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.000	5.47	7.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.56	7.49	5.95
5/27/13 23:16	N1305231					192.20	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.000	1.98	9.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.45	9.52	2.03
6/16/13 15:59	N1306191					250.10	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.000	4.80	5.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.16	5.68	5.16
6/26/13 22:53	N1306225					259.60	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.000	3.12	3.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	92.84	3.97	3.20
7/26/13 14:22	N1307255					213.70	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.000	4.73	6.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	88.91	6.18	4.92
7/26/13 14:23	N1307256					245.80	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.000	4.56	5.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.91	5.37	4.72
8/11/13 16:05	N1308177					242.90	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.000	4.82	8.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.87	8.03	5.11
8/21/13 23:10	N1308195					542.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	5.68	13.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	80.98	13.34	5.68
8/25/13 14:06	N1308228					299.10	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.000	3.71	11.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.26	11.00	3.74
9/27/13 13:15	N1309231					254.10	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.000	3.94	14.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	81.07	14.95	3.98
Supplier Summary						2,884.70	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.000	4.39	8.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.73	8.73	4.54

**NOTE: As Single Stream programs produced ONP with more contaminants, the testing resources focused on the critical categories of; Glass, Other Prohib (non-fiber), Unbleached (OCC, Cereal, Carrier Boar, etc) need for improvement.**

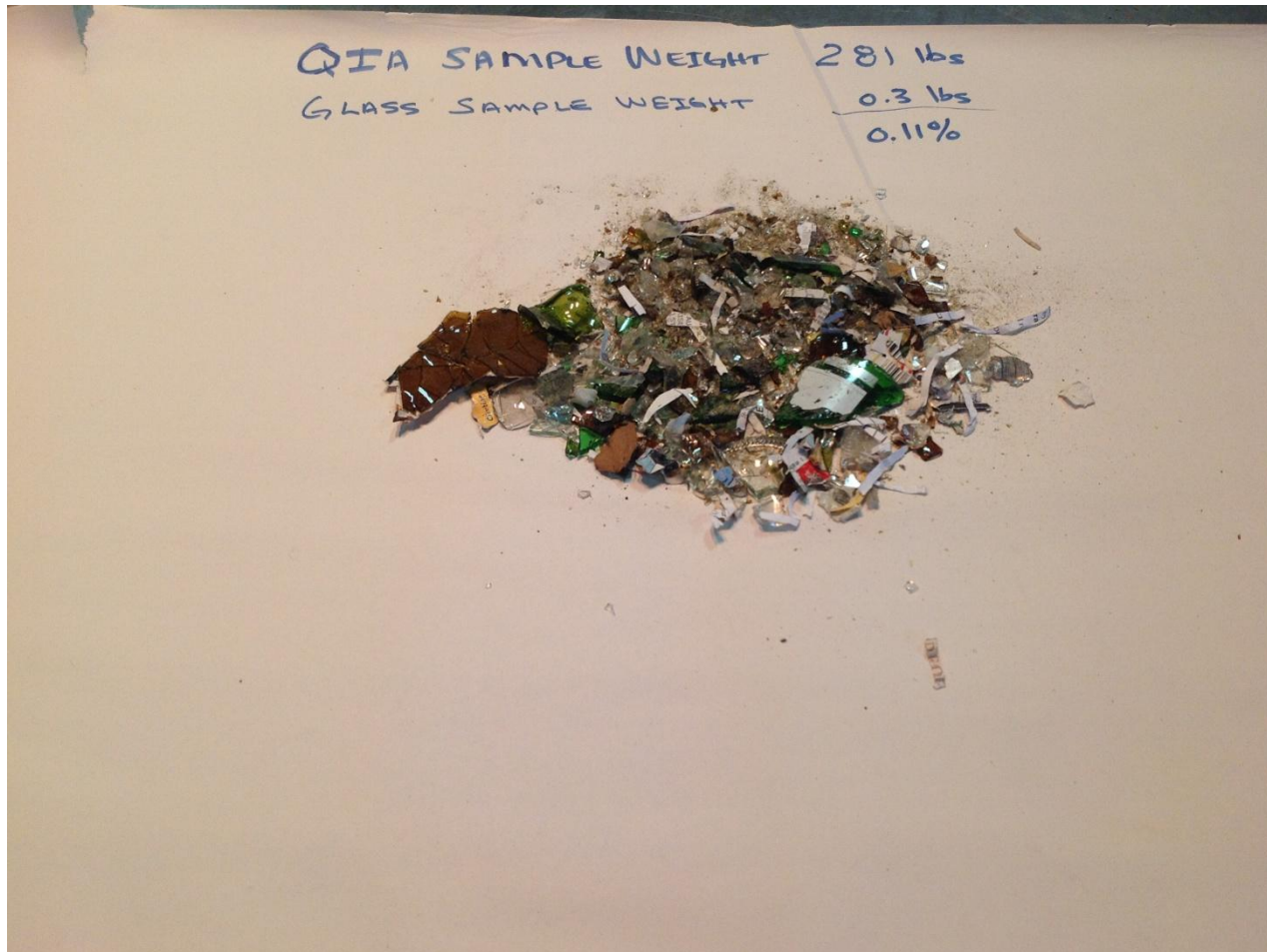
# Single Stream With and Without Glass Comparison

- Single Stream With Glass
  - Higher Glass content compared to programs without glass
  - Glass content can have extreme highs when sorting equipment is not operating correctly
- Single Stream Without Glass
  - More consistent, lower glass content
  - Glass content higher than preferred - but tolerable

# Single Stream With Glass



# Single Stream Without Glass



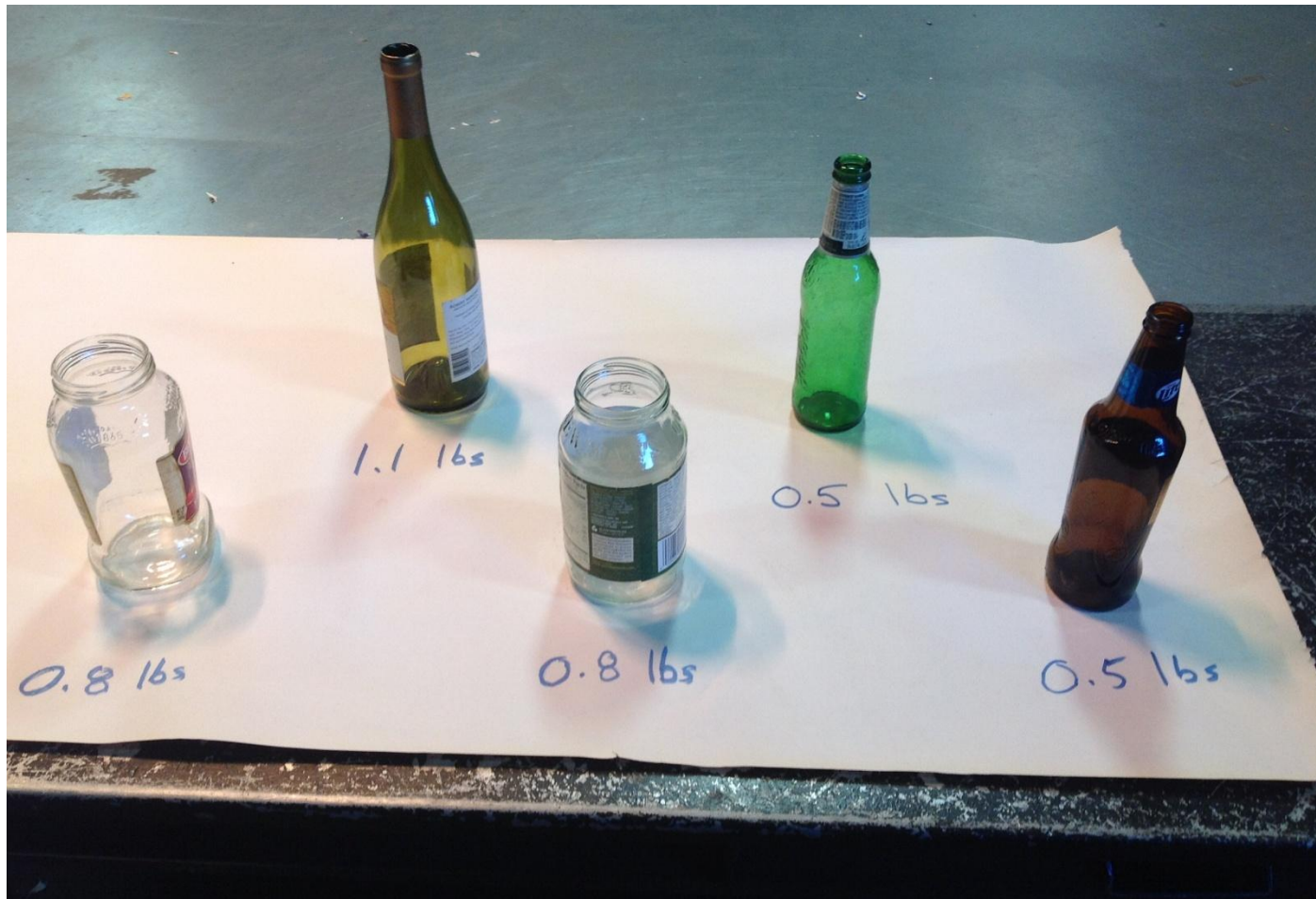
QIA SAMPLE WEIGHT 281 lbs  
GLASS SAMPLE WEIGHT 0.3 lbs  
0.11%



QIA SAMPLE WEIGHT 234 lbs  
GLASS SAMPLE WEIGHT 2.3 lbs  
1.03%



# What Do They Weigh?



## Magnitude of Glass Contamination – Single Stream Program With Glass

- Average Impact per Month From ONE Supplier
  - 1,000 tons per month shipment
  - 1,000 tons @ average 0.33% = 3.3 tons or 6,600 lbs
  - Assuming a bottle weight of 0.5 lbs = 13,200 bottles
  - Annualized = 158,400 bottles
- Impact From ONE Shipment
  - One Rail Shipment of 90 tons
  - 90 tons @ 1.1% = 0.99 tons or 1,980 lbs
  - Equivalent to 3,960 bottles in one shipment

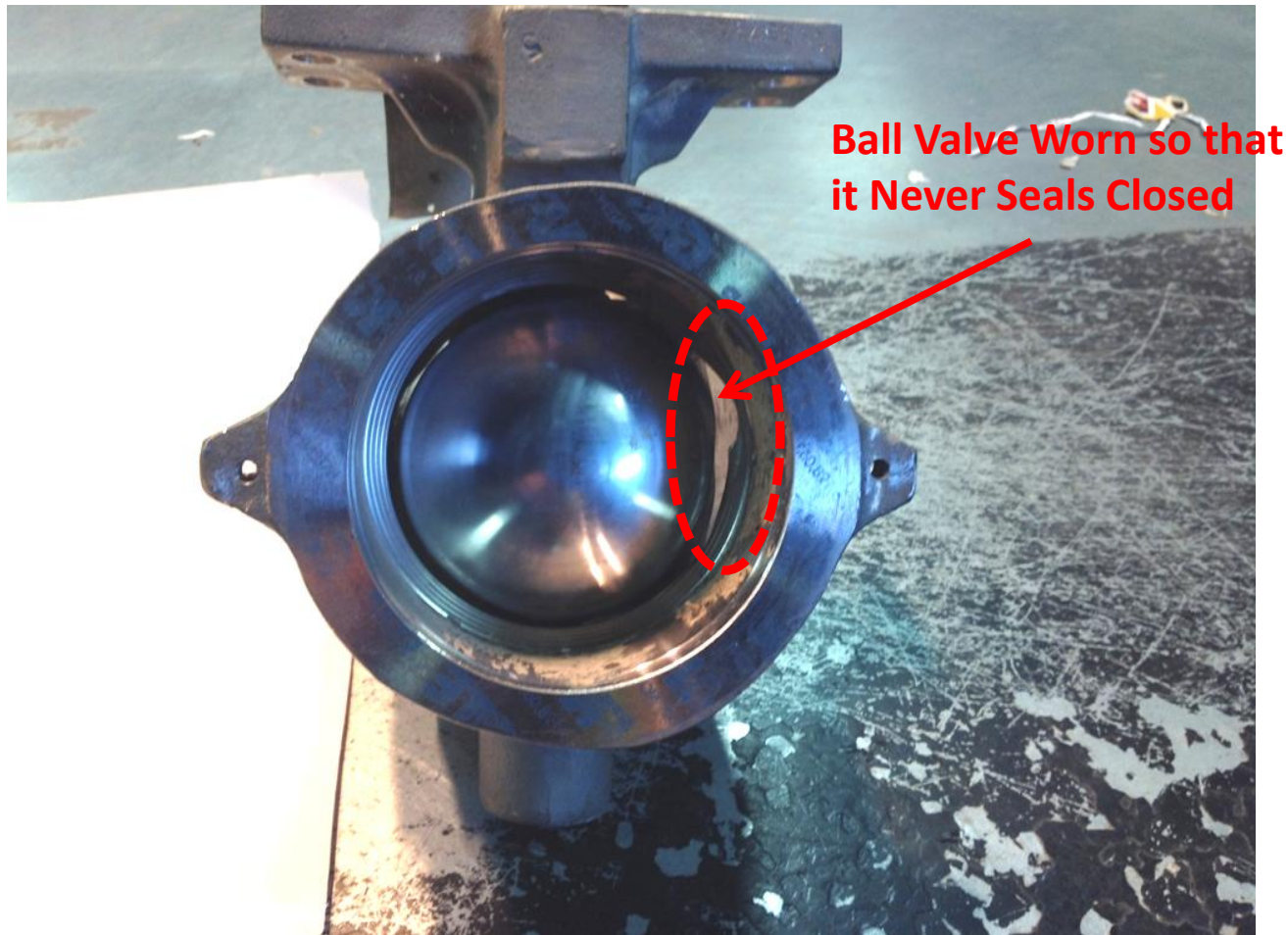
# Magnitude of Glass Contamination – Single Stream Program Without Glass

- Average Impact per Month From ONE Supplier
  - 1,000 tons per month shipment
  - 1,000 tons @ average 0.15% = 1.5 tons or 3,000 lbs
  - Assuming a bottle weight of 0.5 lbs = 6,000 bottles
  - Annualized = 72,000 bottles
- Impact from ONE Shipment
  - One Rail Shipment of 90 tons
  - 90 tons @ 0.48% = 0.43 tons or 860 lbs
  - Equivalent to 1,720 bottles in one shipment

# Mill Process Impacts

- VALVES
  - 4 inch control valve eroded to point of non-functional.
  - Average life expectancy of 10 - 15 years
  - This valve lasted only 3 years
  - Cost to replace >\$10,000
  - Larger valves are exponentially higher cost to replace
  - There are over 1,400 control loops/valves in our process
- PUMPS
  - Average life expectancy is 15 years
  - Damage due to glass reduces these to 3 – 5 years at a minimum cost of \$60,000 per pump
- SCREENS
  - Average life expectancy is 5-7 years
  - With damage due to glass they need replacing every 1 – 1.5 years and can cost up to \$70,000 to replace
  - There are 9 screens in our operation exposed to glass contamination

# Mill Process Impacts



# Will Bottle Bill Impact Glass In Curbside Programs

- From our data, those programs that keep glass separate have a significantly lower glass content in their ONP supply
- From independent studies, glass recovered via a Single Stream curbside program that includes glass;
  - Has essentially zero market value
  - Is extremely harmful on all collection and separation equipment
  - Shuts down deinking mill processes and damages extremely expensive components

# Will Bottle Bill Impact Glass In Curbside Programs - continued

- It is extremely difficult to determine the impact of a Bottle Deposit Program upon the glass content at the curb
- But we do know -
  - Glass sourced from color separated depot programs produce the cleanest glass for recycling requiring minimal resort
  - Bottle deposit programs can provide the next cleanest source of raw material but the colors need sorting to gain maximum value
  - Curbside collection with glass collected separately requires additional sorting and produces a significantly lower quality which is more difficult to market.
  - Curbside collection with glass included in one container has the worst quality requiring extensive re-sorting. This leaves a product that is extremely difficult or impossible to market back into glass.